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Seven Historically Black Colleges Win Support for Fossil Energy R&D

WASHINGTON, DC - As part of its efforts to encourage more participation by minority college students and teachers in its national energy program, the Department of Energy (DOE) has selected seven coal, natural gas, and oil research projects to be carried out by student-teacher teams at six Historically Black Colleges and Universities (HBCU).

Six of the winning schools will partner with private sector companies and receive Federal research grants totaling \$100,000 to \$200,000 each. The industry-university partnerships will focus on environmental research in natural gas and oil exploration and production, advanced methods for cleaning sulfur and nitrogen pollutants from coal, and innovative coal use technologies.

One university, Virginia State University, will receive a separate smaller grant for a one-year exploratory effort in oil and gas exploration.

Secretary of Energy Hazel R. O'Leary lauded the selection and the growing participation by the minority community in 21st century fossil energy research. "If we are to meet the energy and environmental challenges of the next century, we must seek out and invest in our Nation's best minds and freshest ideas.

"The people who will resolve the critical issues of the next century are in college today. The opportunity we offer them through this program will not only benefit their educational progress but will help secure our country's energy future," O'Leary said.

Now in its fifth year, DOE's Fossil Energy HBCU Research Program teams teaching professors and students with industrial collaborators to carry out advanced research to improve the efficiency of fossil energy use, reduce environmental concerns, and improve the production of fossil fuels. The 1996 winning projects were selected from 34 proposals submitted to DOE's Office of Fossil Energy.

The selected projects were proposed by:

North Carolina A&T State University, Greensboro, NC, will receive two grants. One, for \$199,987 in Federal funds, will support a 3-year research project to develop a method that could be used in the petrochemical industry to recover valuable hydrogen at higher temperatures using a new composite membrane. This research could help overcome materials and engineering barriers involved in integrating inorganic membrane reactor technology into future refineries and petrochemical plants. Dr. Shamsuddin Ilias will head the research team.

The other project, for \$199,963, is for a 3-year grant to examine fundamental aspects of coal ignition. The research team will conduct experiments to determine the speed and manner in which various coals ignite. The research data will help combustion equipment developers interpret and use coal ignition data more accurately. Dr. John C. Chen will be the lead researcher.

Clark Atlanta University, Atlanta, GA, will receive a \$200,000 grant for a 3-year project to investigate the way coal particles behave when heated at different rates. A better understanding of these properties will permit equipment engineers to design more efficient technologies to burn coal, or to turn coal into a clean-burning combustible gas or into a liquid substitute for imported oil. The research contact is Dr. Ramanathan Sampath.

Xavier University of Louisiana, New Orleans, LA, will receive a \$199,858 grant for a 3-year research project to conduct "magneto-chemical character studies" of novel iron catalysts for coal liquefaction. This study will improve understanding of the role catalysts play in converting coal into liquid fuels and chemicals. It will also help engineers design lower-cost coal-to-liquid systems that could produce substitutes for imported oil. Dr. Murty A. Akundi will lead the research team.

Prairie View A&M University, Prairie View, TX, will receive a \$188,684 grant for a 3-year project to study the way a surfactant (a detergent-like substance) and a polymer (a type of "bulky" molecule) interact to push oil through a reservoir. A vast amount of proven domestic oil deposits are stranded in reservoirs too shallow for gases such as carbon dioxide, nitrogen or flue gases to be effective in "pushing" oil to production wells. Yet, this oil is also too light to use thermal heating processes to move it through the reservoir rock. Surfactant-polymer flooding is the only method to unlock this vast resource. Prairie View A&M research, to be headed by Dr. Jorge Gabitto, will supply experimental data and other information to assist oil producers design more effective surfactant-polymer combinations.

Wilberforce University, Wilberforce, OH, will receive a \$110,423 grant for a 3-year project to develop a unique process that simultaneously generates a combustible fuel source and a commercially valuable carbon product. Coal will be heated in the presence of an iron-containing catalyst to form nearly microscopic carbon fibers. Rather than being released as pollutants, sulfur impurities will be separated from the coal and locked in the fiber. The heating process will produce a clean, hydrogen-rich mixture of hydrocarbons, which can be burned as a heat source for commercial power or industrial chemical processes. The carbon fibers can be used in making rubber products, plastics, composites, epoxies, and even concrete. The research contact is Dr. Herbert Smitherman.

Virginia State University, Petersburg, VA, will receive \$10,000 for a 1-year exploratory grant to study the effect of oil and gas exploration on the environment and particularly on the disappearance of wetlands. In the project's first phase, researchers will review past studies, compile available data, and create a data base. In the second phase, the research team will

measure the effects that various aspects of oil and gas operations have on the loss of wetlands and determine which factors play the most significant role. A model will be developed to provide a comprehensive understanding of the factors responsible for the loss of Louisiana coastal wetlands in nine basins. Dr. Ali Ansari will be the lead researcher.